

THIRD
ANNUAL REPORT
OF
THE SANITARY CONDITION
OF THE
BOSTON
URBAN SANITARY DISTRICT,
FOR THE YEAR 1897,
BY
ARTHUR TUXFORD, M.D. (EDIN.),
MEDICAL OFFICER OF HEALTH.

BOSTON :


Printed by the Lincolnshire Newspaper and General Printing
Company, Limited, 94, West-street.

THIRD
ANNUAL REPORT
OF
THE SANITARY CONDITION
OF THE
BOSTON
URBAN SANITARY DISTRICT,
FOR THE YEAR 1897,
BY
ARTHUR TUXFORD, M.D. (EDIN.),
MEDICAL OFFICER OF HEALTH.

BOSTON :

Printed by the Lincolnshire Newspaper and General Printing

Company, Limited, 94, West-street.



Digitized by the Internet Archive
in 2017 with funding from
Wellcome Library

<https://archive.org/details/b28942000>

REPORT.

TO THE MEMBERS OF THE BOSTON URBAN SANITARY AUTHORITY.

MR. MAYOR AND GENTLEMEN,

According to the requirements of the Local Government Board, I have now the honour of presenting to you my annual report upon the Sanitary Condition of the District.

The area of the Boston Urban Sanitary District is 3,200 acres.

The Population may be estimated at 15,000.

BIRTHS.—The number of Births registered in the District during the year 1897 was 456, viz., 246 Males, and 210 Females, as per table.

Months.	No of Births.	Male.	Female.	Illegitimate Males.	Illegitimate Females.
January.....	39	21	16	2	—
February ...	42	25	14	2	1
March	50	24	23	1	2
April	32	12	15	3	2
May	29	11	14	2	2
June	35	15	14	5	1
July	48	27	17	1	3
August	29	16	10	—	3
September...	35	15	18	1	1
October	48	18	23	5	2
November ...	29	16	9	2	2
December ...	40	21	18	1	—
Total	456	221	191	25	19

The Birth rate for the year was 30.4 per 1000.

In 1889	„	„	„	28.0	„
„ 1890	„	„	„	25.0	„
„ 1891	„	„	„	26.	„
„ 1892	„	„	„	26.	„
„ 1893	„	„	„	25.	„
„ 1894	„	„	„	26.4	„
„ 1896	„	„	„	29.533	„

DEATHS.—During the past year, 374 deaths were registered as against 310 in 1896, making a death rate of 24.93 per thousand. In 1896, 310 deaths were registered, with a death rate of 20.666 per thousand.

Excluding the deaths in the Boston Union Workhouse (31), and in the Boston Hospital (11), you have for the true Urban Sanitary District of Boston a total of 332 deaths, giving a death rate of 22.13 per thousand Inhabitants. Of these deaths, no less than 115 were under one year of age, 112 had attained to the age of sixty-five and upwards, twenty-six were between seventy and seventy-five ; twenty eight were between seventy-five and eighty ; twenty-one were between eighty and eighty-five ; thirteen were between eighty-five and ninety ; two were between ninety and ninety-five ; and two were over ninety-five, one having reached the mature age of ninety-seven years ; one child was registered as having existed for 15 minutes. The highest rate of mortality was during the month of August, when 61 deaths were registered, 45 of them being under 5 years. A

mortality so high justifies me quoting a paragraph from "The Hospital," of October 16th on Child Mortality, which says : "No one is surprised to learn that the death rate during an epidemic such as that raging at Maidstone at present, should exceed 30 per week ; but the Child Mortality in Dundee certainly appears extraordinary. During last August it is shown that no less than 130 Children died in Dundee under the age of five years. The principal complaints recorded are "Gastric and intestinal in character." If therefore a "Child Mortality" of 130 under 5 years of age were considered extraordinary in a city containing over 140,000 Inhabitants, what must be thought of the rate of "Child Mortality" in Boston (for the same month, and from similar and other causes), of 45, out of a Population estimated at 15,000 !

Altogether 147 deaths under 5 years of age were recorded during the year 1897, 45 of these deaths were registered from Diarrhœa, 37 from diseases of the Respiratory Organs, 5 from Measles, 2 from injuries, and 58 from "other causes" as explained in the Table. The infant death rate (*i.e.*), under one year of age, was 252.193 per 1000 registered Births ! Of the remaining 227 deaths, 1 was from Scarlet Fever, 4 from Typhoid Fever, 1 from Measles, 3 from Diarrhœa, 1 from Rheumatic Fever, 16 from Phthisis, 38 from Bronchitis, Pheumonia and Pleurisy, 37 from Heart Disease, 12 from injuries, and 114 from "other causes" as per table.

“NOTIFICATION OF INFECTIOUS DISEASES.”—There were 76 notifications during the year, as against 110 in 1896.

1897.	Diph- theria.	Membra- nous Croup.	Erysipe- las.	Scarlet Fever.	Enteric Fever.	Co- tinued Fever
January	1	3	4	1	...
February	1	1	...
March	4	4	...	...
April	1	...	...	1
May	1	...	...
June	2	...	...	...
July	1	...	...	...
August	2	...	...
September	1	...	4	2	9	...
October	2	4	2
November	2	7	2	..
December	2	5	7	...
Total	1	1	19	28	24	3

Compared with 1896 there is a decrease in the number of notifications, of Scarlet Fever 39, of Diphtheria 9, of Erysipelas 2, and an increase of Typhoid Fever of 13, of Continued Fever 3, and of Membranous Croup 1.

Measles. In April there was a very severe epidemic of Measles and Mumps in the town, necessitating the closing of the Elementary Schools (April 2nd), for a fortnight, and on April 22nd they were re-closed until May 10th, owing to the continuance of the epidemic. It is an open question as to whether it is of benefit to the town to close the schools for Measles, as it is in many respects, radically different from all other important contagious diseases. It is most readily communicated, and hence the least readily prevented from spreading. It is the least serious both as regards immediate results and its sequelæ. It has no known means of prevention as small-pox. It is less severe in childhood than in adult life, and properly

treated and not over-treated, the mortality from Measles is extremely small ; among the well-to-do it is almost nothing. Far better would it be to instruct in its Hygiene which seems so little understood by the laity—the physician often not being called in—than to attempt its suppression.

Erysipelas was prevalent during the year, but no death was registered from it.

Scarlet Fever was “en evidence” most of the year, generally of a mild type. One death, however, from the disease was registered, complicated with “endocarditis.”

Diarrhæa. During the month of August there were 32 deaths under 5 years of age registered from Diarrhæa. As I was away for my holiday during that month, I was unable to trace the cause of the epidemic, and upon enquiring of my colleagues, I regret to say I could learn nothing from them which tended to a satisfactory elucidation of the outbreak. After very careful consideration, I feel justified in attributing it either to impure milk, impure water, or to a combination of the two.

That the drinking water supplied to the Town was impure, has since been shown by Analysis. The influence of contaminated Milk in causing and spreading Zymotic Disease should always be borne in mind. A report by Mr. Ernest Hart contains a tabular analysis of forty-eight such outbreaks. Pan Milk may become contaminated before it reaches the dairy. Such a contamination is due, invariably either to—(1) Infection in the persons immediately concerned in drawing or handling the milk ; or (2) to the absence of cleanliness in the milk utensils, the animal, or the surroundings.

Many of the organisms which are capable of causing disease do so by producing toxic decomposition products from the

milk. It is an essential condition of hygienic milk production, and especially of a milk suitable for children, that it should be kept at a low temperature during the whole of the interval between milking and consumption and it should be removed from the cowshed as quickly as possible.

Dr. Williams, of Glamorgan, has written a most interesting and instructive article on "Pure Milk and its Adulteration," which should be read by every member of every Sanitary Authority in England. If the suggestions therein contained were carried out, one of the great sources of Zymotic Infection would be eradicated.

TYPHOID FEVER.—Two cases of Typhoid fever were notified, one in January, and one in February, and after an interval of six months, 9 notifications were received in September ; during the two following months the fever slightly abated, but in December there were 7 more notifications.

CAUSES.—Given as noted :—

At 22 Mill-lane, "Sewer ventilators in front of houses open."

At 6 Mill-lane, "Nothing wrong, no cause."

At 23 Lawrence-lane, "Nothing wrong."

At 17 Chapel-street, "Privy Vaults abut on back kitchen and offensive."

At 18 Duke-street, "Very offensive privy."

At 29 Blue-street, "Very offensive privy, old well full of sewage, and drain insufficiently trapped."

At 6 Union-court, "Nothing wrong, no cause."

At 3 Eresby Villas, Woodville-road, "Nothing wrong, no cause."

At 21 Blue-street, "same at 29 Blue-street."

At 7 Zion-court, "Trap not cemented down."

At 9 South-square, "Rats bored out of old brick sewer into water closet."

At 12 Lawrence-lane, "Trap not cemented down."

At 14 Dolphin-lane, "Drain all right, but water closet, in the house, the pan of which was two-thirds full of human excreta and in a disgusting state, no water laid on to it."

At 14 Union-street, "Trap not cemented down."

At the Churchyard, "Everything in good order, no cause. Here one person died, after nursing her sister. The servant girl who attended to the Invalids, was taken ill, sent to her home at Kirton Holme, and developed Typhoid Fever. Also another sister after assisting in nursing, was taken ill, went to her home at Sutterton Dowdyke and developed Typhoid Fever."

At 6 Fountain-lane, "Rats bored from old brick sewer under workshop in New-street, and stunk out with sewer gas."

At 3 Stafford-street, "Nothing wrong, no cause."

At 14 Fountain-lane, "Stagnant water in cellars and offensive ; and cistern water contaminated with sewage ; old brick drain bad, privy connected direct to it ; here, there were four cases, one of a very bad type."

ZYMOTIC DEATH RATE, 4.466.

BAKEHOUSES. — To the already heavy duties of your Medical Officer another has been added, viz., "Inspector" of

Bakehouses, of which there are 41 within the Urban Sanitary District. It is to be regretted that several of the bakers are indisposed to carry out the requirements of the Act, due notice of which has been twice given to them by the Sanitary Committee,—and have therefore met me with opposition, forgetting that I am compelled to enforce the carrying out of the Act as laid down by the Local Government Board.

WATER.—On the 15th of October I received a communication calling my attention to the case of a girl who went from her home at Asgarby to Langton-by-Wragby and was taken with acute Diarrhœa and died in 3 or 4 days. This case was notified as Typhoid Fever, and it appears that she had been suffering from diarrhœa off and on, and was far from well when she left Asgarby. It is at Asgarby that the water supply of Boston starts before it goes through Miningsby and Revesby and as there was nothing about the house or its vicinity, of the nature of a nuisance or anything to explain this case, it was suggested that I should ascertain whether there was any pollution of the water. Almost the whole of the water which supplies Boston is I believe surface water, though at Asgarby there is a pure water which comes from a pocket of green sand beneath the Boulder Clay ; there is a privy midden on the hill by the house in which the girl lived, such as there is all over the district, but it was not known whether there was any leakage.

In view of the Epidemic at Maidstone and fearing an outbreak of water - borne - typhoid in Boston, I immediately forwarded the communication to the Chairman of the Sanitary Authority, who also holds the position of Chairman of the Water Company, and on the 17th (Monday) I laid the facts before the Sanitary Committee, explaining to them the great risks they

ran in allowing the inhabitants to continue drinking the Company's Water without a bacteriological and chemical examination. The Committee authorised me to forward samples of the water for analysis, which I did to the Clinical Research Association, London, and in the meantime I had handbills issued, advising the public to have their drinking water (where practicable) filtered, and boiled. On Oct. 26th I received the following reports :

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

1, Southwark-street,

London Bridge, S.E.

26th October, 1897.

LABORATORY REPORT.

To A. TUXFORD, Esq.

The specimen of water received here on 19th Oct. has been duly examined, and I have been instructed to forward the following report thereon :—

The water contained upwards of 10,000 organisms per cubic centimetre when we received it at the Laboratory. In spite of this large number we have been unable to find any *Bacilli coli communis* or *Bacilli typhi abdominalis*.

C. H. WELLS,

Secretary of the Association.

To A. TUXFORD, Esq.,

The Specimen of water received here on Oct. 19th has

been duly examined, and I have been instructed to forward the following report thereon :—

Colour in 2-ft. tube	...	...	yellowish.
Suspended matter	...	..	... none.
			Grains per Gallon.
Total Solid Residue (dried at 120° C.)			14.42
Combined Chlorine	...	..	1.40
Expressed as Common Salt	...		2.31
Nitrogen as Nitrates	...	...	absent
Nitrites	...	...	absent
Saline Ammonia	...	...	0.0004
Albuminoid Ammonia	...	...	0.0203
Oxygen required to oxidise the			
Organic Matter	...	...	0.1260
Hardness (in degrees)	..	...	10° 5
Lead or Copper	...	...	absent

Observations :—The high Albuminoid Ammonia and the amount of oxygen absorbed by the organic matter, show that this water is too impure to be used for drinking purposes. The pollution would appear to be recent as there is no evidence of oxidation of the organic material having occurred.

The water is soft and is free from metallic contamination.

C. H. WELLS,

Secretary of the Association.

The first sample of water was sent in a stone jar, this not being considered a satisfactory method by the Association, I requested them to send me sterilized bottles and received the second report dated October 29th.

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

1, Southwark Street,
London Bridge, S.E.

Oct. 29th, 1897.

LABORATORY REPORT.

To Dr. A. TUXFORD, BOSTON, U.D.C.

The Specimen of water received here on Oct. 26th, has been duly examined, and I have been instructed to forward the following Report thereon :—

This water was found to contain about 3,600 organisms per c.c.

C. H. WELLS,

Secretary of the Association.

Some doubt having been cast by members of the Water Company as to the source from which I obtained the sample, a fresh supply of bottles was sent down by the Association and were filled in the presence of Mr. Councillor Clarke, ex-Mayor, this having been duly examined by the Association, I received the 3rd report.

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

1, Southwark Street,
London Bridge, S.E.

Nov. 20th, 1897.

LABORATORY REPORT.

To Dr. A. TUXFORD.

The Specimen of water received here on November 10th, has been duly examined, and I have been instructed to forward the following Report thereon :—

This water contains only a comparatively small number of organisms, and neither the *Bacillus Coli Communis*, nor the *Bacillus Typhi Abdominalis* could be found, even in large quantities (100 c. c.) of the water.

	Grains per Gallon.			
Total Solid Residue (dried at 120° C.)	14	35		
Combined Chlorine	1	30		
Expressed as Common Salt ...	2	14		
Nitrogen as Nitrates	0	07		
Nitrites	absent			
Saline Ammonia	traces only			
Albuminoid Ammonia	0	017		
Oxygen required to oxidise the Or- ganic Matter	0	110		
Hardness (in degrees)	10	5		
Lead or Copper	absent			

Observations :—The above data show that this water contains too much organic matter for it to be considered safe for drinking purposes.

The low proportion of chlorides indicates, however, that actual sewage contamination is unlikely and suggests that the organic impurities may have had a vegetable origin.

Nevertheless, a water yielding nearly 0·02 grains per gallon of albuminoid ammonia, and absorbing over 0·1 grain per gallon of oxygen, should, by a consensus of opinion, be condemned as a supply for drinking purposes.

C H. WELLS,

Secretary of the Association.

After the reading of the Water Company's report at the meeting of the Urban Sanitary Authority in December, I requested the Clinical Research Association to forward me a full and complete report of the waters sent to them for analysis, on October 26th, and November 10th, which report is as follows:—

THE CLINICAL RESEARCH ASSOCIATION, LIMITED.

Report upon samples of water ("Miningsby Water") received through Dr. Arthur Tuxford, Boston.

The sample yielding the following *Chemical Analysis* was received on November 10th, 1897, and was contained in a carefully cleaned glass-stoppered bottle.

				Grains per gallon.
Total Solid Matter	...	...	...	14.35
Combined Chlorine	...	...	...	1.30
Expressed as Sodium Chloride			...	2.14
Nitrates	...	...	...	0.070
Nitrites	...	...	...	absent
Free Ammonia	...	...		traces only
Albuminoid Ammonia		...	...	0.017
Oxygen required to Oxidize the				
organic matters		...	...	0.110
Lead, Copper	...	...	...	absent

The samples for *Bacteriological examination* were contained in sterilized bottles and were forwarded in ice.

One received on Oct. 26th, was found to contain 3,600 organisms per cubic centimetre.

A second, received on Nov. 10th, contained comparatively few organisms, and neither the *Bacillus Typhi Abdomnialis* nor the *Bacillus Coli Communis* could be found.

In the Chemical Analysis the yield of Albuminoid Ammonia is seen to be 0.017 grains per gallon and the amount of oxygen required to oxidize the organic matters 0.11 grains per gallon.

The amount of Albuminoid Ammonia is at least twice as great as what is recognised as a maximum for a satisfactory water ; and if this indication of the presence of an undue amount of organic matter be considered in connection with the large number of organisms found in the samples received on October 26th, there can be no hesitation in reporting unfavourably upon this supply. It is generally held that the number of organisms in a satisfactory water should not exceed about 100 per cubic centimetre. In a specimen received on November 10th, the number of organisms had it is true fallen to a satisfactory figure ; but it is of the utmost importance that the freedom from organisms should be a stable condition. A consensus of opinion would condemn a water yielding such analytical results, as being in a condition unfit for a public supply. We know of no instance in London or elsewhere in which such a condition has been publicly condoned by competent Sanitary Authorities.

C. H. WELLS, Hon. Sec.

After the exhaustive reports which I now lay before you, I think comment on my part is unnecessary, beyond saying, that in the future, samples of the water will be periodically forwarded as requested by the Authority, and full report made as to the result of the analysis.

May I earnestly ask the Sanitary Committee, through you, to give the greatest countenance and support to your Officers in the discharge of their official duties, and to remember that their suggestions are only made after mature deliberation, and are for the well-being of the whole of the Inhabitants.

ARTHUR TUXFORD, M.D.

TABLE OF DEATHS DURING THE YEAR 1897, IN THE BOSTON URBAN SANITARY DISTRICT. CLASSIFIED
ACCORDING TO DISEASES, AGES AND LOCALITIES.

MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS (F AGE.										MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.																
NAMES OF LOCALITIES adopted for the purpose of these Statistics ; public in-titutions being shown as separate localities.	At all ages.						Under 1 year.				1 and under 5.		5 and under 15.		15 and under 25.		25 and under 65.		65 and upwards.							
	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		
Boston Borough ...	332	114	31	11	12	77	87	{ Under 5. 5 upwards.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Boston Union Workhouse	31	...	...	...	...	6	25	{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Boston Hospital ...	11	1	1	1	...	8	...	{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS ...	374	115	32	12	12	91	112	{ Under 5. 5 upwards.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
The subjoined numbers have also to be taken into account in judging of the above records of mortality.																										
Deaths occurring outside the district among persons belonging thereto.								{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deaths occurring within the di-strict among persons not belonging thereto.	1	1		2	4	11		{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

*The heading of column 19 is left blank for the insertion of Influenza, or any other disease which it may be thought desirable to record.

TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH, DURING THE YEAR 1897, IN THE BOSTON URBAN SANITARY DISTRICT; CLASSIFIED ACCORDING TO DISEASES, AGES AND LOCALITIES.

NAMES OF LOCALITIES adopted for the purpose of these Statistics; Pub- lic Institutions being shown as separate locali- ties.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS IN EACH LOCALITY, coming to the knowledge of the Medical Officer of Health.										NUMBER OF SUCH CASES REMOVED FROM their Homes in the several Localities for treatment in Isolation Hospitals.												
	Last Census.	Estimated to middle of 1897.			FEVERS.						FEVERS.				Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.		
					Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.												Erysipelas.	
Population	14,444	15,000	456	{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
No. of Notifications ...	77			{ Under 5. 5 upwards.	7	21	1	1	...	24	4	...	...	19	...	...	...	...	...	...	...	...	...	...	...	...	...
Isolation Hospital				{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
				{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
				{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
				{ Under 5. 5 upwards.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTALS...				{ Under 5. 5 upwards.	7	21	1	1	...	24	4	...	...	19	...	...	...	...	...	...	...	...	...	...	...	...	...

State here whether "Notification of Infectious Disease" is compulsory in the District—Yes. Since when?—1890. Besides the above-mentioned Diseases, insert in the columns with blank headings the names of any that are notifiable in the District, and fill the columns accordingly. State here the name of the Isolation Hospital used by the sick of the District. Mark (H) the Locality in which such Hospital is situated; and if not within the District, state where it is situated The Isolation Hospital is in Skirbeck, adjoining Boston.

TABLE OF MORTALITY IN THE BOSTON URBAN SANITARY DISTRICT,
FOR THE YEAR ENDING 31ST DECEMBER, 1897.

Name of Disease.	Deaths (among all classes) registered as having occurred in the District.						
	Total Deaths registered as above. Aged under 5 yrs. 5 yrs. & upwards.						
Scarlatina	—	...	1
Membranous Croup	1	...	—
Enteric or Typhoid	—	...	4
Measles	5	...	1
Whooping Cough	7	...	—
Diarrhœa and Dysentery	45	...	3
Rheumatic Fever	—	...	1
Phthisis	—	...	16
Bronchitis, Pneumonia & Pleurisy	29	...	38
Heart Disease	—	...	37
Injuries	2	...	12
Cancer and Maligant Disease	—	...	9
Apoplexy	—	...	13
Cerebral Softening	—	...	11
Paralysis	—	...	8
Hemiplegia	—	...	2
Meningitis	4	...	4
Convulsions	13	...	—
Sunstroke	—	...	2
Marasmus	16	...	—
Tuberculosis	4	...	2
Premature Birth, Congenital Deformity, Debility and Inanition	18	...	—
Old Age	—	...	21
Peritonitis	—	...	3
Herniæ and Obstruction (Operation)	—	...	4
Bright's Disease	—	...	7
Alcoholism	—	...	2
Gout	—	...	3
Cystitis	—	...	3
Suicide	—	...	1
Diabetes	—	...	1
Other Causes	—	...	18



